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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,437	01/28/2004	Michael Joseph Reale	140069	3602

7590 08/10/2006

John S. Beulick
Armstrong Teasdale LLP
Suite 2600
One Metropolitan Square
St. Louis, MO 63102

EXAMINER

KIM, TAE JUN

ART UNIT	PAPER NUMBER
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3746

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/766,437	REALE ET AL.	
	Examiner	Art Unit	
	Ted Kim	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06/01/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 21-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/1/2006 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zaugg (4,522,024) in view of Payling (6,467,252) and optionally Tsukamoto et al (6,397,578).

Zaugg teaches a cooling system for a gas turbine engine that includes at least a first compressor 3, a second compressor 3, and a turbine 1, said cooling system comprising: an intercooler 5 (left) coupled downstream from the first compressor such that compressed air discharged from the first compressor is routed therethrough, said intercooler having a working fluid flowing therethrough; and an injection system 16

coupled in flow communication with said intercooler 5, said injection system configured to channel condensate 10 formed in said intercooler into the combustor 9; further comprising a condensate holding tank 11 in flow communication with said intercooler, said condensate holding tank configured to receive said condensate formed in said intercooler; further comprising a first pump 12 coupled in flow communication with said condensate holding tank; said first pump directs said condensate to a second holding tank 13; further comprising a second pump 15, different than said first pump, in flow communication with said second holding tank, said second pump configured to channel condensate from said second holding tank to said condensate injection system 9. Zaugg does not teach injecting the water from the condensate into an injection system circumferentially spaced at the inlet of the second compressor nor the use of a demineralizer nor an annular manifold to supply the condensate to the nozzles coupled to the manifold. Payling et al teach using an intercooler 68 between the compression stages 52 or 202 (Fig. 6) or 254 (Fig. 8) followed by 54 or 204 (Fig. 6) or 258 (Fig. 8) and using an annular manifold 212, connected to water injectors/nozzles 222 (see Fig. 6) or annular manifold 264, connected to the water injectors/nozzles 266 (see Fig. 8) coupled to a plurality of nozzles that inject water via circumferentially spaced injectors/nozzles between the first 52 or 202 (Fig. 6) or 254 (Fig. 8) and second 54 or 204 (Fig. 6) or 258 (Fig. 8) compressors where the water injection serves to cool the compressor air, reduce compressor horsepower used and increase engine output levels (col. 2, lines 40-57). The demineralized water (col. 10, lines 16+) is pumped to the water injection system. It

would have been obvious to one of ordinary skill in the art to inject the water between the compressor stages, as taught by Payling, in order to cool the compressor air, cool the compressor air, reduce compressor horsepower used and increase engine output levels. As for the demineralizer, Tsukamoto et al teach using a demineralizer 16 upstream of the pump 17 for the condensate from 15 which is recirculated back into the gas turbine. It would have been obvious to one of ordinary skill in the art to employ a demineralizer before the pump 12 of Zaugg, in order to purify the water and reduce corrosion and/or fouling of the water injectors/nozzles.

4. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Payling et al (6,467,252) in view of Zaugg (4,522,024) and optionally Tsukamoto et al (6,397,578). Payling et al teach a cooling system for a gas turbine engine that includes at least a first compressor 52 or 202 (Fig. 6) or 254 (Fig. 8), a second compressor 54 or 204 (Fig. 6) or 258 (Fig. 8), and a turbine 58, said cooling system comprising: an intercooler 68 coupled downstream from the first compressor such that compressed air discharged from the first compressor is routed therethrough, said intercooler having a working fluid flowing therethrough; and an injection system 64 or 206 (Fig. 6) or 260 (Fig. 8), said injection system configured to channel water to an annular manifold 212 connected to water injectors/nozzles 222 (see Fig. 6) or annular manifold 264 connected to the water injectors/nozzles 266 (see Fig. 8) to facilitate supplying water to the plurality of nozzles coupled to the manifold and ejecting/channeling water into the second compressor 54 or 204 (Fig. 6) or 258 (Fig. 8) at a predetermined rate to facilitate reducing an operating

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temperature of the gas turbine engine; a second pump 352 for pumping demineralized water (col. 10, lines 16+) to the injection system. Payling et al do not teach using the water condensed from the intercooler for the water that is injected into the second compressor. Zaugg teaches a cooling system for a gas turbine engine that includes at least a first compressor 3, a second compressor 3, and a turbine 1, said cooling system comprising: an intercooler 5 (left) coupled downstream from the first compressor such that compressed air discharged from the first compressor is routed therethrough, said intercooler having a working fluid flowing therethrough; and an injection system 16 coupled in flow communication with said intercooler 5, said injection system configured to channel condensate 10 formed in said intercooler into the combustor 9; further comprising a condensate holding tank 11 in flow communication with said intercooler, said condensate holding tank configured to receive said condensate formed in said intercooler; further comprising a first pump 12 coupled in flow communication with said condensate holding tank; said first pump directs said condensate to a second holding tank 13; further comprising a second pump 15, different than said first pump, in flow communication with said second holding tank, said second pump configured to channel condensate from said second holding tank to said condensate injection system 9. Zaugg clearly teaches that the water is condensed into the intercooler 5 and the condensate is conveniently recirculated back into the gas turbine system, which reduces the demand for external water (col. 1, lines 64+) and enhances the thermodynamic efficiency. It would have been obvious to one of ordinary skill in the art to use the condensate from the

intercooler of Payling et al, as taught by Zaugg, in order to reduce the demand for external water (col. 1, lines 64+) and enhance the overall thermodynamic efficiency. As for the demineralizer, Tsukamoto et al teach using a demineralizer 16 upstream of the pump 17 for the condensate from 15 which is recirculated back into the gas turbine. It would have been obvious to one of ordinary skill in the art to employ a demineralizer before the pump 12 of Zaugg, in order to purify the water and reduce corrosion and/or fouling of the water injectors/nozzles.

Response to Arguments

5. Applicant's amendments filed 06/01/2006 amend around the Nettel et al (2,372,846) in view of Erickson (6,412,291) or Zaugg (4,522,024) combination of references, previously applied. Hence, this grounds of rejection has been withdrawn.
6. Applicant's amendments fail to distinguish over the rest of the grounds of rejection of record as Payling specifically show the annular manifold and water injectors.
7. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.


The fax numbers for the organization where this application is assigned are 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thorpe, can be reached at 571-272-4444. Alternate inquiries to Technology Center 3700 can be made via 571-272-3700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business

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Center (EBC) at 866-217-9197 (toll-free). General inquiries can also be directed to the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at <http://www.uspto.gov/main/patents.htm>


Ted Kim
Primary Examiner
July 25, 2006

Technology Center 3700	Telephone	571-272-4829
Patents Assistance Center	Fax (Regular)	571-273-8300
	Fax (After Final)	571-273-8300
	Telephone	571-272-3700
	Telephone	800-786-9199